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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/002,393

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Masaya Ishida

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03/14/2005

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EXAMINER

TRINH, HOA B

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 03/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/002,393

Applicant(s)

ISHIDA ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 18-25 and 41-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-25 and 41-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The argument in the response to the non-final rejection is persuasive and the non-final rejection of previous office action is withdrawn. A new ground of non-final rejection is as below.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 18, 20-22, 41, and 45-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Bao et al. (US 6,150,668).

With regard to claim 18, Bao et al. disclose a thin film transistor, TFT, integrated with an organic light-emitting diode, OLED, (col. 4, line 44 to col. 9, line 35 and fig. 2) comprising:

- an organic TFT 201 including at least a active layer 230 made of organic material (col. 6, lines 48-58 and fig. 2);
- an organic electroluminescent element driven by the organic TFT (col. 1, lines 16-27 and fig. 2).

With regard to claim 20, Bao et al. disclose the TFT 201 is provided between the substrate 205 and the OLED 202 (fig. 2).

With regard to claim 21, Bao et al. disclose the source and drain region areas is larger than an area of the OLED element 202 (fig. 2).

With regard to claim 22, Bao et al. disclose the source and drain region have bent parts that face each other at a predetermined spacing (see the bent parts on active layer 230 in fig. 2).

With regard to claim 41, Bao et al. disclose the active layer comprises an organic semiconductor film 235 made of pentacene (col. 6, line 64).

With regard to claim 45-47, Bao et al. disclose:

- a electrode 216 connected to the organic TFT 201 and in contact with the luminescent layer 235 (fig. 2);
- an insulation film 220 provided between the electrode 215 and the substrate 205 (fig. 2);
- a luminescent layer 235 comprised of the organic luminescent element (col. col. 7, lines 50-56);
- the electrode 216 is large than the luminescent layer (fig. 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19, 23, and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (US 6,150,668).

With regard to claim 19 and 23, Bao et al. do not disclose:

- the OLED element is provided between the substrate and the organic TFT,
- the gate is provided so as to cover the bent parts of the source and drain.

However, the arrangement of the components of the device in different order can function in the same manner because the reversal of parts was held to have been obvious for a person having ordinary skill in the art. *In re Gazda* 104 USPQ 400 (CCPA 1955).

With regard to claim 43, Bao et al. do not disclose the thickness of the light-emitting layer of about 80 nm. The thickness of about 80 nm is considered to involve routine optimization, which has been held to be within the level of ordinary skill in the art. As noted in *In re Aller*, the selection of reaction parameters such as the thickness, would have been obvious:

“Normally, it is to be expected that a change in temperature, or in thickness, or in time, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art...such ranges are termed “critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”

*In re Aller* 105 USPQ 233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmscher* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Therefore, one of ordinary skill in the requisite art at the time the invention was made would have used any thickness suitable to the method of the process in order to optimize the design.

With regard to claim 44, Bao et al. disclose the suitable semiconductor material for the light-emitting layer is fluorinated phthalocyanine (col. 7, lines 50-58), which is one of the polyfluorene family.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (US 6,150,668) in view of Liedenbaum et al. (US 6,054,725).

With regard to claim 24, Bao et al. do not disclose the source and drain are provided in a comb-shape and face each other at a predetermined spacing. However, Liedenbaum et al. disclose a first and second electrodes are comb-shaped and arranged in the luminescent area facing each other at a predetermined spacing (Liedenbaum fig. 3). Liedenbaum et al. disclose the comb-shaped electrode could be an anisotropically scattering layer (Liedenbaum col. 3, lines 1-5). Bao et al. and Liedenbaum et al. have substantially the same environment of organic semiconductor device having electrodes arranged in source and drain layout. Therefore, it would have been obvious for the one with ordinary skill in the art to modify Bao's device with the teaching of Liedenbaum et al. to provide a source and drain electrodes in a comb-shape and face each other at a predetermined spacing in order to scatter the current anisotropically.

With regard to claim 25, Bao et al. modified by Liedenbaum et al. would disclose a spiral shape source and drain electrodes (Liedenbaum fig. 5).

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (US 6,150,668) in view of Matsuo et al. (US 6,617,613).

With regard to claim 42, Bao et al. do not disclose the shape of the luminescent layer having a cylindrical shape. However, Matsuo et al. disclose a cylindrical shape light-emitting element (Matsuo col. 3, lines 45-50 and fig. 3). Matsuo et al. teach the cylindrical shape light-emitting element possible to improve luminance (Matsuo col. 3, lines 55-56). Bao et al. and Matsuo et al. have substantially the same environment of light-emitting device having organic EL layer. Therefore, it would have been obvious at the time the invention was made to modify Bao's device with the teaching of Matsuo et al. to provide a cylindrical shape light-emitting element in order to improve the luminance.

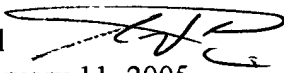
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wsl

February 11, 2005.

A handwritten signature in black ink, appearing to be 'Wsl', is written over the typed name 'Wsl'.